

What is claimed is:

1           1.       A valve body for use in a full-open seat, stem-guided valve, the valve body  
2 comprising:

3                   first and second portions symmetrical about first and second longitudinal  
4 axes respectively, said first and second longitudinal axes being colinear and forming a  
5 common longitudinal axis, and said first and second portions being joined through a  
6 cylindrical web of predetermined minimum thickness,

7                   wherein said cylindrical web is radially spaced apart from and  
8 symmetrically disposed about said common longitudinal axis;

9                   wherein the valve body totally encloses a hollow; said hollow being  
10 symmetrical about said common longitudinal axis and extending radially from said  
11 common longitudinal axis to said cylindrical web;

12                  wherein said first portion comprises a top guide stem extending away from  
13 said hollow along said first longitudinal axis, and said second portion comprises a crow-  
14 foot guide extending away from said hollow along said second longitudinal axis; and

15                  wherein said cylindrical web spaces apart and connects opposing walls of  
16 an integral seal retention groove in the valve body.

1           2.       The valve body of claim 1 wherein said opposing integral seal retention  
2 groove walls comprise at least one serration.

1           3.       The valve body of claim 2 wherein said at least one serration comprises an  
2 as-machined surface.

1           4.       The valve body of claim 2 wherein said at least one serration comprises an  
2 as-forged surface.

1           5.       A full-open seat, stem-guided valve comprising the valve body of claim 1,  
2 a corresponding full-open seat, and an elastomeric seal cast and cured in said integral seal  
3 retention groove of the valve body without a bonding agent between said elastomeric seal  
4 and said seal retention groove.

1           6.       A valve body for use in a full-open seat, stem-guided valve, the valve body  
2 comprising:

3                   first and second portions symmetrical about first and second longitudinal  
4 axes respectively, said first and second longitudinal axes being colinear and forming a  
5 common longitudinal axis, and said first and second portions being joined through a  
6 cylindrical web of predetermined minimum thickness;

7                   wherein said cylindrical web is radially spaced apart from and  
8 symmetrically disposed about said common longitudinal axis;

9                   wherein the valve body encloses a hollow, said hollow being substantially  
10 symmetrical about said common longitudinal axis and extending radially from said  
11 common longitudinal axis to said cylindrical web;

12                   wherein said first portion comprises a top guide stem extending away from  
13 said hollow along said first longitudinal axis, and said second portion comprises a crow-  
14 foot guide extending away from said hollow along said second longitudinal axis;

15                   wherein said top guide stem comprises a longitudinal fluid passage;

16                   wherein said hollow is in fluid communication with space outside the  
17 valve body through said longitudinal fluid passage; and

18                   wherein said cylindrical web spaces apart and connects opposing walls of  
19 an integral seal retention groove in the valve body.

1           7.       The valve body of claim 6 wherein welding flash protrudes from said  
2 cylindrical web into said integral seal retention groove.

1           8.       The valve body of claim 6 wherein said opposing integral seal retention  
2 groove walls comprise at least one serration.

1           9.       A full-open seat, stem-guided valve comprising the valve body of claim 6,  
2 a corresponding full-open seat, and an elastomeric seal in said integral seal retention  
3 groove of the valve body, and wherein said longitudinal fluid passage is plugged.

1           10.      A full-open seat, stem-guided valve comprising the valve body of claim 7,  
2 a corresponding full-open seat, and an elastomeric seal cast and cured in said integral seal  
3 retention groove of the valve body, said seal enveloping said welding flash without use of  
4 a bonding agent.